

I claim:

1. An integrated circuit configuration, comprising:

an insulating layer;

a first conductive structure embedded in said insulating layer;

a diffusion barrier layer and a second insulating layer disposed above said first conductive structure and being formed with a contact hole reaching as far as said first conductive structure and having side walls;

a second conductive structure disposed in said contact hole and conductively connected to said first conductive structure; and

spacers formed on said side walls of said contact hole above said diffusion barrier layer, said spacers acting as a barrier to diffusion of a material from said first conductive structure into said second insulating layer and reaching as far as a surface of said diffusion barrier layer.

2. The circuit configuration according to claim 1, wherein said spacers are electrically conductive.

3. The circuit configuration according to claim 1, which further comprises an electrically conductive first diffusion barrier structure adjoining said first conductive structure at least beneath and to a side thereof and acting as a barrier to diffusion of material from said first conductive structure.

4. The circuit configuration according to claim 3, which further comprises an electrically conductive second diffusion barrier structure adjoining said second conductive structure at least beneath said second conductive structure and acting as a barrier to diffusion of material from said second conductive structure.

5. The circuit configuration according to claim 4, wherein at least one of said first conductive structure and said second conductive structure contain a material selected from the group consisting of copper, silver, gold, platinum, and palladium;

at least one of said spacers, said first diffusion barrier structure, and said second diffusion barrier structure contain a material selected from the group consisting of Ta, TaN, Ti, and TiN; and

one of said diffusion barrier layer and said spacers contain a material selected from the group consisting of SiN and SiON.

6. The circuit configuration according to claim 1, which further comprises an electrically conductive diffusion barrier structure adjoining said second conductive structure at least beneath said second conductive structure and acting as a barrier to diffusion of material from said second conductive structure.

7. A method of producing an integrated circuit configuration, which comprises:

forming a diffusion barrier layer on a substrate having at least a first insulating layer with a first conductive structure embedded therein;

forming a second insulating layer on the diffusion barrier layer;

etching a contact hole into the second insulating layer above the first conductive structure, wherein the surface of the first conductive structure is covered with the diffusion barrier layer within the hole;

forming spacers on side walls of the contact hole, the spacers acting as a barrier to diffusion of a material from the first conductive structure into the second insulating layer;

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opening the contact hole as far as a surface of the first
conductive structure, and

forming in the contact hole a second conductive structure
conductively connected to the first conductive structure.

8. The method according to claim 7, which comprises forming
the spacers of electrically conductive material.

9. The method according to claim 7, which comprises
forming the first electrically conductive structure by
applying the first insulating layer to the substrate;
producing an opening with a bottom and side walls in the first
insulating layer;

depositing and structuring a first conductive barrier layer
for forming an electrically conductive first diffusion barrier
structure covering the bottom and the side walls of the
opening; and

forming the first conductive structure by filling the opening
with conductive material.

10. The method according to claim 9, which comprises

depositing a second conductive barrier layer after the contact hole has been opened as far as the surface of the first conductive structure;

depositing a conductive layer;

structuring the conductive layer and the second conductive barrier layer, and thereby forming the second conductive structure and a second diffusion barrier structure arranged underneath the second conductive structure.

11. The method according to claim 7, which comprises:

forming one of the first conductive structure and the second conductive structure with a material selected from the group consisting of copper, silver, gold, platinum, and palladium;

forming one of the spacers, the first diffusion barrier structure, and the second diffusion barrier structure with a material selected from the group consisting of Ta, TaN, Ti, and TiN; and

forming one of the diffusion barrier layer and the spacers with a material selected from the group consisting of SiN and SiON.